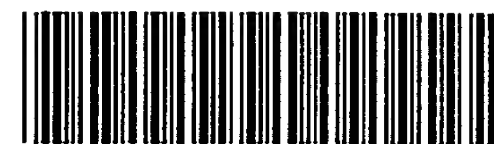


3119



#3

# ENTERED

OIPE

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/986,224

DATE: 03/06/2002

TIME: 12:40:28

Input Set : A:\07334-333001.txt

Output Set: N:\CRF3\03062002\I986224.raw

4 <110> APPLICANT: Bertin, John  
 5 Wang, Weiye  
 6 Blatcher, Maria  
 8 <120> TITLE OF INVENTION: NOVEL MOLECULES OF THE NBS/LRR PROTEIN FAMILY AND USES  
 THEREOF  
 10 <130> FILE REFERENCE: 07334-333001  
 12 <140> CURRENT APPLICATION NUMBER: US 09/986,224  
 W--> 13 2001-10-22  
 C--> 15 <141> CURRENT FILING DATE: 2001-10-22  
 15 <150> PRIOR APPLICATION NUMBER: US 09/848,035  
 16 <151> PRIOR FILING DATE: 2001-05-03  
 18 <150> PRIOR APPLICATION NUMBER: US 60/201,464  
 19 <151> PRIOR FILING DATE: 2000-05-03  
 21 <160> NUMBER OF SEQ ID NOS: 20  
 23 <170> SOFTWARE: FastSEQ for Windows Version 4.0  
 25 <210> SEQ ID NO: 1  
 26 <211> LENGTH: 2464  
 27 <212> TYPE: DNA  
 28 <213> ORGANISM: Homo sapiens  
 30 <220> FEATURE:  
 31 <221> NAME/KEY: CDS  
 32 <222> LOCATION: (1)...(2463)  
 34 <400> SEQUENCE: 1  
 35 atg aca tcg ccc cag cta gag tgg act ctg cag acc ctt ctg gag cag 48  
 36 Met Thr Ser Pro Gln Leu Glu Trp Thr Leu Gln Thr Leu Leu Glu Gln  
 37 1 5 10 15  
 39 ctg aac gag gat gaa tta aag agt ttc aaa tcc ctt tta tgg gct ttt 96  
 40 Leu Asn Glu Asp Glu Leu Lys Ser Phe Lys Ser Leu Leu Trp Ala Phe  
 41 20 25 30  
 43 ccc ctc gaa gac gtg cta cag aag acc cca tgg tct gag gtg gaa gag 144  
 44 Pro Leu Glu Asp Val Leu Gln Lys Thr Pro Trp Ser Glu Val Glu Glu  
 45 35 40 45  
 47 gct gat ggc aag aaa ctg gca gaa att ctg gtc aac acc tcc tca gaa 192  
 48 Ala Asp Gly Lys Lys Leu Ala Glu Ile Leu Val Asn Thr Ser Ser Glu  
 49 50 55 60  
 51 aat tgg ata agg aat gcg act gtg aac atc ttg gaa gag atg aat ctc 240  
 52 Asn Trp Ile Arg Asn Ala Thr Val Asn Ile Leu Glu Glu Met Asn Leu  
 53 65 70 75 80  
 55 acg gaa ttg tgt aag atg gca aag gct gag atg atg gag gac gga cag 288  
 56 Thr Glu Leu Cys Lys Met Ala Lys Ala Glu Met Met Glu Asp Gly Gln  
 57 85 90 95  
 59 gtg caa gaa ata gat aat cct gag ctg gga gat gca gaa gaa gac tcg 336  
 60 Val Gln Glu Ile Asp Asn Pro Glu Leu Gly Asp Ala Glu Glu Asp Ser  
 61 100 105 110

## RAW SEQUENCE LISTING

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63	gag	tta	gca	aag	cca	ggt	gaa	aag	gaa	gga	tgg	aga	aat	tca	atg	gag	384
64	Glu	Leu	Ala	Lys	Pro	Gly	Glu	Lys	Glu	Gly	Trp	Arg	Asn	Ser	Met	Glu	
65			115						120					125			
67	aaa	caa	tct	ttg	gtc	tgg	aag	aac	acc	ttt	tgg	caa	gga	gac	att	gac	432
68	Lys	Gln	Ser	Leu	Val	Trp	Lys	Asn	Thr	Phe	Trp	Gln	Gly	Asp	Ile	Asp	
69		130					135					140					
71	aat	ttc	cat	gac	gac	gtc	act	ctg	aga	aac	caa	cgg	ttc	att	cca	ttc	480
72	Asn	Phe	His	Asp	Asp	Val	Thr	Leu	Arg	Asn	Gln	Arg	Phe	Ile	Pro	Phe	
73	145					150					155					160	
75	ttg	aat	ccc	aga	aca	ccc	agg	aag	cta	aca	cct	tac	acg	gtg	gtg	ctg	528
76	Leu	Asn	Pro	Arg	Thr	Pro	Arg	Lys	Leu	Thr	Pro	Tyr	Thr	Val	Val	Leu	
77					165					170					175		
79	cac	ggc	ccc	gca	ggc	gtg	ggg	aaa	acc	acg	ctg	gcc	aaa	aag	tgt	atg	576
80	His	Gly	Pro	Ala	Gly	Val	Gly	Lys	Thr	Thr	Leu	Ala	Lys	Lys	Cys	Met	
81				180					185					190			
83	ctg	gac	tgg	aca	gac	tgc	aac	ctc	agc	ccg	acg	ctc	aga	tac	gcg	ttc	624
84	Leu	Asp	Trp	Thr	Asp	Cys	Asn	Leu	Ser	Pro	Thr	Leu	Arg	Tyr	Ala	Phe	
85			195					200				205					
87	tac	ctc	agc	tgc	aag	gag	ctc	agc	cgc	atg	ggc	ccc	tgc	agt	ttt	gca	672
88	Tyr	Leu	Ser	Cys	Lys	Glu	Leu	Ser	Arg	Met	Gly	Pro	Cys	Ser	Phe	Ala	
89		210					215					220					
91	gag	ctg	atc	tcc	aaa	gac	tgg	cct	gaa	ttg	cag	gat	gac	att	cca	agc	720
92	Glu	Leu	Ile	Ser	Lys	Asp	Trp	Pro	Glu	Leu	Gln	Asp	Asp	Ile	Pro	Ser	
93	225				230						235					240	
95	atc	cta	gcc	caa	gca	cag	aga	atc	ctg	ttc	gtg	gtc	gat	ggc	ctt	gat	768
96	Ile	Leu	Ala	Gln	Ala	Gln	Arg	Ile	Leu	Phe	Val	Val	Asp	Gly	Leu	Asp	
97				245					250					255			
99	gag	ctg	aaa	gtc	cca	cct	ggg	gcg	ctg	atc	cag	gac	atc	tgc	ggg	gac	816
100	Glu	Leu	Lys	Val	Pro	Pro	Gly	Ala	Leu	Ile	Gln	Asp	Ile	Cys	Gly	Asp	
101			260					265					270				
103	tgg	gag	aag	aag	aag	ccg	gtg	ccc	gtc	ctc	ctg	ggg	agt	ttg	ctg	aag	864
104	Trp	Glu	Lys	Lys	Lys	Pro	Val	Pro	Val	Leu	Leu	Gly	Ser	Leu	Leu	Lys	
105			275					280					285				
107	agg	aag	atg	tta	ccc	agg	gca	gcc	ttg	ctg	gtc	acc	acg	cgg	ccc	agg	912
108	Arg	Lys	Met	Leu	Pro	Arg	Ala	Ala	Leu	Leu	Val	Thr	Thr	Arg	Pro	Arg	
109		290					295					300					
111	gca	ctg	agg	gac	ctc	cag	ctc	ctg	gcg	cag	cag	ccg	atc	tac	ata	agg	960
112	Ala	Leu	Arg	Asp	Leu	Gln	Leu	Leu	Ala	Gln	Gln	Pro	Ile	Tyr	Ile	Arg	
113	305				310					315					320		
115	gtg	gag	ggc	ttc	ctg	gag	gag	gac	agg	agg	gcc	tat	ttc	ctg	aga	cac	1008
116	Val	Glu	Gly	Phe	Leu	Glu	Glu	Asp	Arg	Arg	Ala	Tyr	Phe	Leu	Arg	His	
117				325					330				335				
119	ttt	gga	gac	gag	gac	caa	gcc	atg	cgt	gcc	ttt	gag	cta	atg	agg	agc	1056
120	Phe	Gly	Asp	Glu	Asp	Gln	Ala	Met	Arg	Ala	Phe	Glu	Leu	Met	Arg	Ser	
121			340					345					350				
123	aac	gcg	gcc	ctg	ttc	cag	ctg	ggc	tcg	gcc	ccc	gcg	gtg	tgc	tgg	att	1104
124	Asn	Ala	Ala	Leu	Phe	Gln	Leu	Gly	Ser	Ala	Pro	Ala	Val	Cys	Trp	Ile	
125			355					360					365				
127	gtg	tgc	acg	act	ctg	aag	ctg	cag	atg	gag	aag	ggg	gag	gac	ccg	ccg	1152

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/986,224

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Input Set : A:\07334-333001.txt

Output Set: N:\CRF3\03062002\I986224.raw

128	Val	Cys	Thr	Thr	Leu	Lys	Leu	Gln	Met	Glu	Lys	Gly	Glu	Asp	Pro	Pro	
129		370					375					380					
131	gtt	ccc	gca	ggg	cgc	aca	gct	gcg	ggg	cgc	gct	gcg	gac	gct	gag	cct	1200
132	Val	Pro	Ala	Gly	Arg	Thr	Ala	Ala	Gly	Arg	Ala	Ala	Asp	Ala	Glu	Pro	
133	385					390					395					400	
135	cct	ggc	cgc	gca	ggg	ctg	tgg	gcg	cag	atg	tcc	gtg	ttc	cac	cga	gag	1248
136	Pro	Gly	Arg	Ala	Gly	Leu	Trp	Ala	Gln	Met	Ser	Val	Phe	His	Arg	Glu	
137					405				410						415		
139	gac	ctg	gaa	agg	ctc	ggg	gtg	cag	gag	tcc	gac	ctc	cgt	ctg	ttc	ctg	1296
140	Asp	Leu	Glu	Arg	Leu	Gly	Val	Gln	Glu	Ser	Asp	Leu	Arg	Leu	Phe	Leu	
141				420				425						430			
143	gac	gga	gac	atc	ctc	cgc	cag	gac	aga	gtc	tcc	aaa	ggc	tgc	tac	tcc	1344
144	Asp	Gly	Asp	Ile	Leu	Arg	Gln	Asp	Arg	Val	Ser	Lys	Gly	Cys	Tyr	Ser	
145		435					440					445					
147	ttc	atc	cac	ctc	agc	ttc	cag	cag	ttt	ctc	act	gcc	ctg	ttc	tac	gcc	1392
148	Phe	Ile	His	Leu	Ser	Phe	Gln	Gln	Phe	Leu	Thr	Ala	Leu	Phe	Tyr	Ala	
149	450						455					460					
151	ctg	gag	aag	gag	gag	gag	gag	gac	agg	gac	ggc	cac	gcc	tgg	gac	att	1440
152	Leu	Glu	Lys	Glu	Glu	Glu	Glu	Asp	Arg	Asp	Gly	His	Ala	Trp	Asp	Ile	
153	465					470					475					480	
155	ggg	gac	gta	cag	aag	ctg	ctt	tcc	gga	gaa	gaa	aga	ctc	aag	aac	ccc	1488
156	Gly	Asp	Val	Gln	Lys	Leu	Leu	Ser	Gly	Glu	Glu	Arg	Leu	Lys	Asn	Pro	
157				485						490					495		
159	gac	ctg	att	caa	gta	gga	cac	ttc	tta	ttc	ggc	ctc	gct	aac	gag	aag	1536
160	Asp	Leu	Ile	Gln	Val	Gly	His	Phe	Leu	Phe	Gly	Leu	Ala	Asn	Glu	Lys	
161				500				505						510			
163	aga	gcc	aag	gag	ttg	gag	gcc	act	ttt	ggc	tgc	cgg	atg	tca	ccg	gac	1584
164	Arg	Ala	Lys	Glu	Leu	Glu	Ala	Thr	Phe	Gly	Cys	Arg	Met	Ser	Pro	Asp	
165		515					520					525					
167	atc	aaa	cag	gaa	ttg	ctg	caa	tgc	aaa	gca	cat	ctt	cat	gca	aat	aag	1632
168	Ile	Lys	Gln	Glu	Leu	Leu	Gln	Cys	Lys	Ala	His	Leu	His	Ala	Asn	Lys	
169	530					535						540					
172	ccc	tta	tcc	gtg	acc	gac	ctg	aag	gag	gtc	ttg	ggc	tgc	ctg	tat	gag	1680
173	Pro	Leu	Ser	Val	Thr	Asp	Leu	Lys	Glu	Val	Leu	Gly	Cys	Leu	Tyr	Glu	
174	545					550					555					560	
176	tct	cag	gag	gag	gag	ctg	gcg	aag	gtg	gtg	gtg	gcc	ccg	ttc	aag	gaa	1728
177	Ser	Gln	Glu	Glu	Glu	Leu	Ala	Lys	Val	Val	Val	Ala	Pro	Phe	Lys	Glu	
178				565						570				575			
180	att	tct	att	cac	ctg	aca	aat	act	tct	gaa	gtg	atg	cat	tgt	tcc	ttc	1776
181	Ile	Ser	Ile	His	Leu	Thr	Asn	Thr	Ser	Glu	Val	Met	His	Cys	Ser	Phe	
182				580				585						590			
184	agc	ctg	aag	cat	tgt	caa	gac	ttg	cag	aaa	ctc	tca	ctg	cag	gta	gca	1824
185	Ser	Leu	Lys	His	Cys	Gln	Asp	Leu	Gln	Lys	Leu	Ser	Leu	Gln	Val	Ala	
186		595					600					605					
188	aag	ggg	gtg	ttc	ctg	gag	aat	tac	atg	gat	ttt	gaa	ctg	gac	att	gaa	1872
189	Lys	Gly	Val	Phe	Leu	Glu	Asn	Tyr	Met	Asp	Phe	Glu	Leu	Asp	Ile	Glu	
190	610					615						620					
192	ttt	gaa	agc	tca	aac	agc	aac	ctc	aag	ttt	ctg	gaa	gtg	aaa	caa	agc	1920
193	Phe	Glu	Ser	Ser	Asn	Ser	Asn	Leu	Lys	Phe	Leu	Glu	Val	Lys	Gln	Ser	

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/986,224

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TIME: 12:40:28

Input Set : A:\07334-333001.txt

Output Set: N:\CRF3\03062002\I986224.raw

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194 625          630          635          640
196 ttc ctg agt gac tct tct gtg cgg att ctt tgt gac cac gta acc cgt      1968
197 Phe Leu Ser Asp Ser Ser Val Arg Ile Leu Cys Asp His Val Thr Arg
198          645          650          655
200 agc acc tgt cat ctg cag aaa gtg gag att aaa aac gtc acc cct gac      2016
201 Ser Thr Cys His Leu Gln Lys Val Glu Ile Lys Asn Val Thr Pro Asp
202          660          665          670
204 acc gcg tac cgg gac ttc tgt ctt gct ttc att ggg aag aag acc ctc      2064
205 Thr Ala Tyr Arg Asp Phe Cys Leu Ala Phe Ile Gly Lys Lys Thr Leu
206          675          680          685
208 acg cac ctg acc ctg gca ggg cac atc gag tgg gaa cgc acg atg atg      2112
209 Thr His Leu Thr Leu Ala Gly His Ile Glu Trp Glu Arg Thr Met Met
210          690          695          700
212 ctg atg ctg tgt gac ctg ctc aga aat cat aaa tgc aac ctg cag tac      2160
213 Leu Met Leu Cys Asp Leu Leu Arg Asn His Lys Cys Asn Leu Gln Tyr
214 705          710          715          720
216 ctg agg ttg gga ggt cac tgt gcc acc ccg gag cag tgg gct gaa ttc      2208
217 Leu Arg Leu Gly Gly His Cys Ala Thr Pro Glu Gln Trp Ala Glu Phe
218          725          730          735
220 ttc tat gtc ctc aaa gcc aac cag tcc ctg aag cac ctg cgt ctc tca      2256
221 Phe Tyr Val Leu Lys Ala Asn Gln Ser Leu Lys His Leu Arg Leu Ser
222          740          745          750
224 gcc aat gtg ctc ctg gat gag ggt gcc atg ttg ctg tac aag acc atg      2304
225 Ala Asn Val Leu Leu Asp Glu Gly Ala Met Leu Leu Tyr Lys Thr Met
226          755          760          765
228 aca cgc cca aaa cac ttc ctg cag atg ttg tcg ttg gaa aac tgt cgt      2352
229 Thr Arg Pro Lys His Phe Leu Gln Met Leu Ser Leu Glu Asn Cys Arg
230          770          775          780
232 ctt aca gaa gcc agt tgc aag gac ctt gct gct gtc ttg gtt gtc agc      2400
233 Leu Thr Glu Ala Ser Cys Lys Asp Leu Ala Ala Val Leu Val Val Ser
234 785          790          795          800
236 aag aag ctg aca cac ctg tgc ttg gcc aag aac ccc att ggg gat aca      2448
237 Lys Lys Leu Thr His Leu Cys Leu Ala Lys Asn Pro Ile Gly Asp Thr
238          805          810          815
240 ggg gtg aag ttt ctg t      2464
241 Gly Val Lys Phe Leu
242          820
244 <210> SEQ ID NO: 2
245 <211> LENGTH: 821
246 <212> TYPE: PRT
247 <213> ORGANISM: Homo sapiens
249 <400> SEQUENCE: 2
250 Met Thr Ser Pro Gln Leu Glu Trp Thr Leu Gln Thr Leu Leu Glu Gln
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252 Leu Asn Glu Asp Glu Leu Lys Ser Phe Lys Ser Leu Leu Trp Ala Phe
253          20          25          30
254 Pro Leu Glu Asp Val Leu Gln Lys Thr Pro Trp Ser Glu Val Glu Glu
255          35          40          45
256 Ala Asp Gly Lys Lys Leu Ala Glu Ile Leu Val Asn Thr Ser Ser Glu

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## RAW SEQUENCE LISTING

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257	50	55	60
258	Asn Trp Ile Arg Asn Ala Thr Val Asn Ile Leu Glu Glu Met Asn Leu		
259	65	70	75
260	Thr Glu Leu Cys Lys Met Ala Lys Ala Glu Met Met Glu Asp Gly Gln		
261		85	90
262	Val Gln Glu Ile Asp Asn Pro Glu Leu Gly Asp Ala Glu Glu Asp Ser		
263		100	105
264	Glu Leu Ala Lys Pro Gly Glu Lys Glu Gly Trp Arg Asn Ser Met Glu		
265		115	120
266	Lys Gln Ser Leu Val Trp Lys Asn Thr Phe Trp Gln Gly Asp Ile Asp		
267		130	135
268	Asn Phe His Asp Asp Val Thr Leu Arg Asn Gln Arg Phe Ile Pro Phe		
269	145	150	155
270	Leu Asn Pro Arg Thr Pro Arg Lys Leu Thr Pro Tyr Thr Val Val Leu		
271		165	170
272	His Gly Pro Ala Gly Val Gly Lys Thr Thr Leu Ala Lys Lys Cys Met		
273		180	185
274	Leu Asp Trp Thr Asp Cys Asn Leu Ser Pro Thr Leu Arg Tyr Ala Phe		
275		195	200
276	Tyr Leu Ser Cys Lys Glu Leu Ser Arg Met Gly Pro Cys Ser Phe Ala		
277		210	215
278	Glu Leu Ile Ser Lys Asp Trp Pro Glu Leu Gln Asp Asp Ile Pro Ser		
279	225	230	235
280	Ile Leu Ala Gln Ala Gln Arg Ile Leu Phe Val Val Asp Gly Leu Asp		
281		245	250
282	Glu Leu Lys Val Pro Pro Gly Ala Leu Ile Gln Asp Ile Cys Gly Asp		
283		260	265
284	Trp Glu Lys Lys Lys Pro Val Pro Val Leu Leu Gly Ser Leu Leu Lys		
285		275	280
286	Arg Lys Met Leu Pro Arg Ala Ala Leu Leu Val Thr Thr Arg Pro Arg		
287		290	295
288	Ala Leu Arg Asp Leu Gln Leu Leu Ala Gln Gln Pro Ile Tyr Ile Arg		
289	305	310	315
290	Val Glu Gly Phe Leu Glu Glu Asp Arg Arg Ala Tyr Phe Leu Arg His		
291		325	330
292	Phe Gly Asp Glu Asp Gln Ala Met Arg Ala Phe Glu Leu Met Arg Ser		
293		340	345
294	Asn Ala Ala Leu Phe Gln Leu Gly Ser Ala Pro Ala Val Cys Trp Ile		
295		355	360
296	Val Cys Thr Thr Leu Lys Leu Gln Met Glu Lys Gly Glu Asp Pro Pro		
297		370	375
298	Val Pro Ala Gly Arg Thr Ala Ala Gly Arg Ala Ala Asp Ala Glu Pro		
299	385	390	395
300	Pro Gly Arg Ala Gly Leu Trp Ala Gln Met Ser Val Phe His Arg Glu		
301		405	410
302	Asp Leu Glu Arg Leu Gly Val Gln Glu Ser Asp Leu Arg Leu Phe Leu		
303		420	425
304	Asp Gly Asp Ile Leu Arg Gln Asp Arg Val Ser Lys Gly Cys Tyr Ser		
305		435	440

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/986,224

DATE: 03/06/2002

TIME: 12:40:29

Input Set : A:\07334-333001.txt

Output Set: N:\CRF3\03062002\I986224.raw

L:13 M:259 W: Allowed number of lines exceeded, <140> CURRENT APPLICATION NUMBER:

L:15 M:271 C: Current Filing Date differs, Replaced Current Filing Date